Scan-to-BIM: Revolutionizing Hospitality Renovations

Precision documentation meets intelligent design – transforming how hotels and restaurants are renovated.

The Challenge: Renovating Hospitality Spaces

Balancing Old & New

Hotels and restaurants require meticulous planning to modernize functionality while preserving their distinctive character and charm.

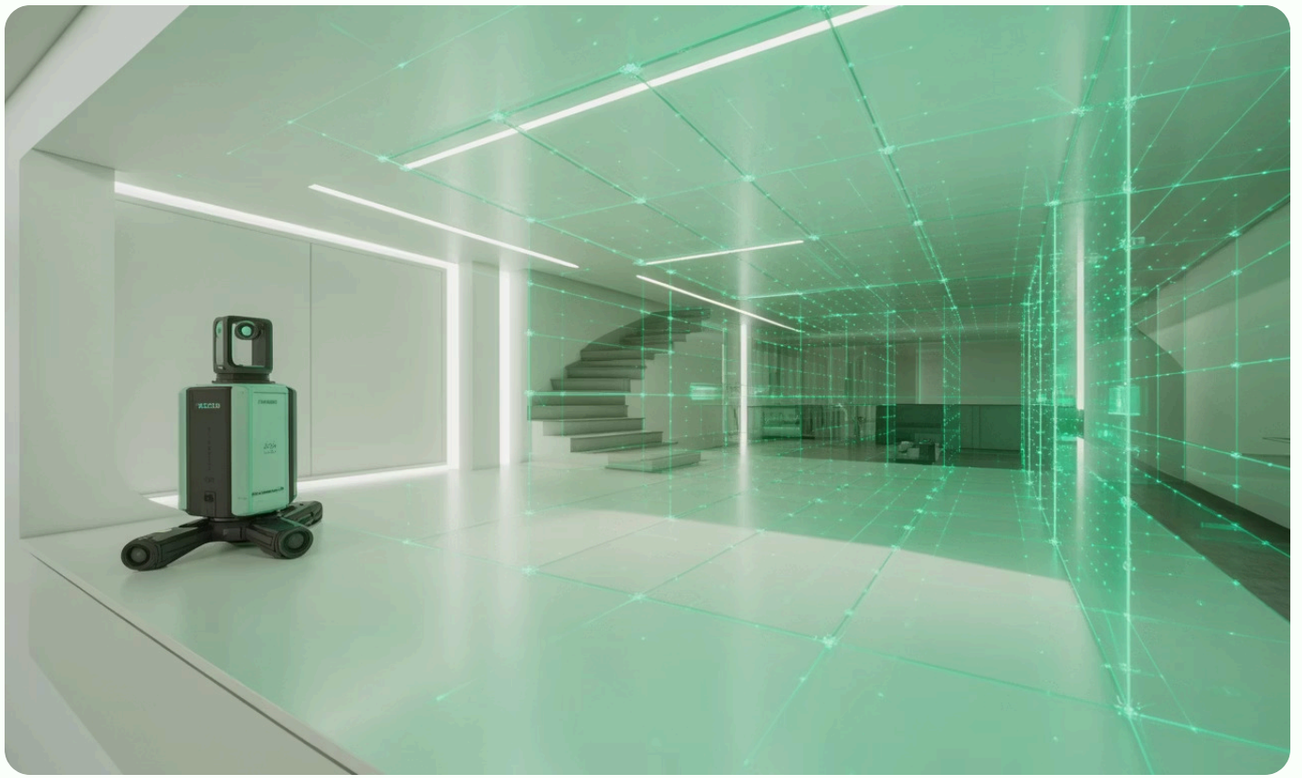
Costly Human Error

Traditional measurement methods are time-consuming and error-prone, leading to expensive rework and project delays.

Complexity at Scale

Multi-floor, multi-room hospitality projects demand a level of documentation accuracy that manual methods simply cannot reliably deliver.

Introducing Scan-to-BIM: The Future of Renovation Documentation



Scan-to-BIM is the integration of two powerful technologies: **3D laser scanning (LiDAR)** and **Building Information Modeling (BIM)**.

→ Capture

LiDAR scans the space with millimeter precision, generating a dense point cloud of existing conditions.

→ Convert

Point cloud data is transformed into accurate, intelligent BIM models ready for renovation planning.

→ Collaborate

All project stakeholders work from a single, authoritative digital model – reducing miscommunication.

LiDAR Scanning: Unparalleled Accuracy

How It Works

Light Detection and Ranging (LiDAR) emits rapid laser pulses and measures their return time to capture millions of precise data points in minutes.

The result is a photorealistic, spatially accurate 3D point cloud of the entire structure – walls, ceilings, columns, MEP systems, and all architectural details.

- Eliminates the guesswork of manual tape measurements, delivering sub-millimeter accuracy across entire floors.

CASE STUDY

Home Wood Suites Franchies By Hilton Hospitality NY Project

Project Scope

Full renovation of a **4-story, 101-room hotel** managed by Aimbridge Hospitality – one of the nation's largest hotel operators.

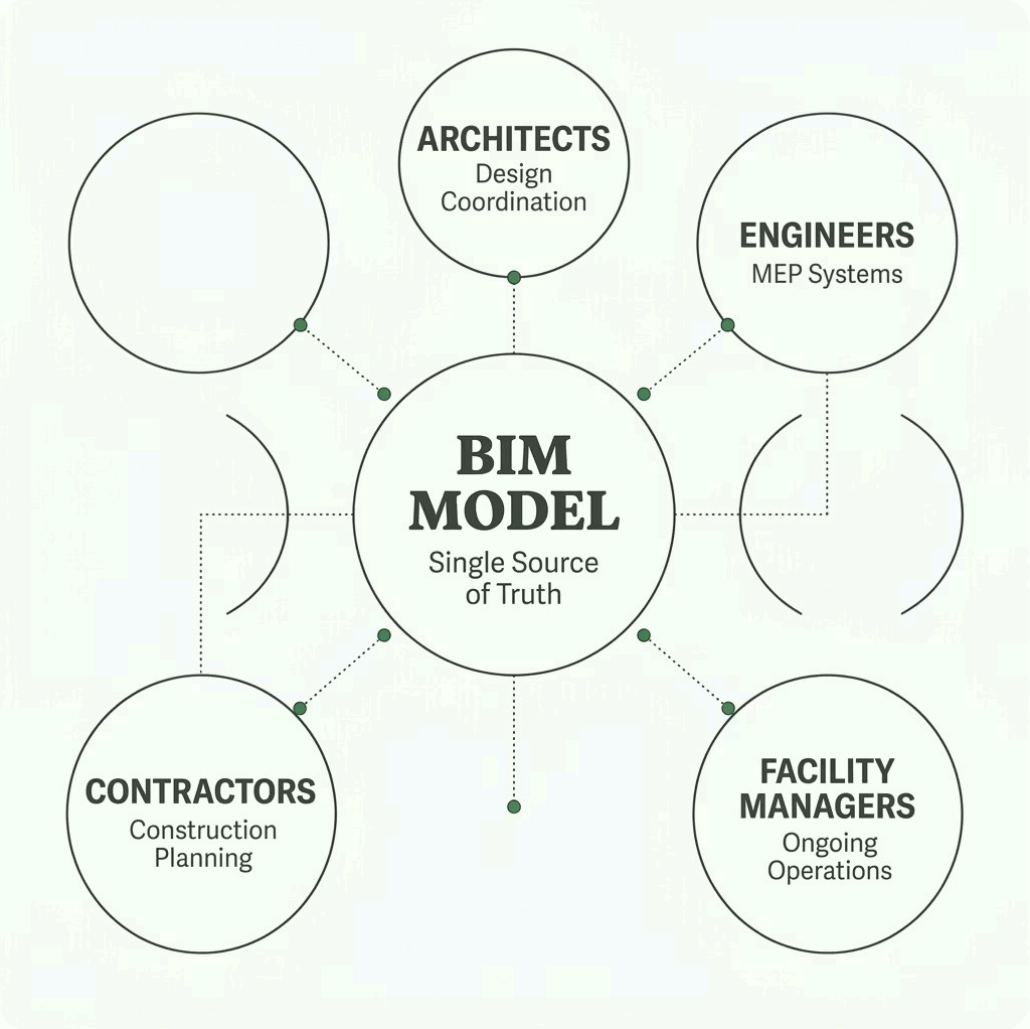
Solution Applied

Terrestrial LiDAR scanners deployed throughout the property to capture every room, corridor, and common area with complete existing-conditions documentation.

Outcome

Millimeter-precise **as-built drawings delivered in Revit**, enabling confident renovation planning, clash detection, and significantly reduced on-site errors.

The Power of BIM in Renovations



A Single Source of Truth

Building Information Modeling goes far beyond geometry – it embeds rich data about a building's physical and functional characteristics into every element of the model.

- Enables real-time collaboration across all AEC stakeholders
- As-built BIM models reflect every modification made during renovation
- Critical for existing-building projects where legacy conditions drive design decisions

Beyond Basic Documentation: Advanced Applications

Deep Learning & Automation

Emerging AI-powered algorithms can automate the generation of as-built BIM models directly from raw point cloud data, dramatically reducing manual modeling time.

Indoor Environment Simulation

Reconstructed IFC models feed directly into **Computational Fluid Dynamics (CFD)** analysis, enabling precise optimization of HVAC, ventilation, and thermal comfort systems.

Digital Twin Creation

The resulting intelligent model becomes a living digital twin – continuously updated to support facility management, energy audits, and future renovation cycles.

From Raw Data to Intelligent Design

On the left: a raw LiDAR point cloud capturing every surface, edge, and spatial relationship with millimeter fidelity. On the right: the same space transformed into a fully intelligent Revit BIM model – ready for renovation design, coordination, and construction documentation.

Key Benefits for Hospitality Renovations

Reduced Rework

Accurate as-built data minimizes costly on-site surprises and construction errors.

Enhanced Planning

Visualize and test new design elements within the precise existing structure before breaking ground.

Streamlined Communication

One authoritative model keeps architects, contractors, and owners aligned throughout the project.

Character Preservation

Capture every unique detail that defines the property's identity – nothing is overlooked or approximated.

Future-Proofing

The digital twin supports ongoing facility management, future renovations, and operational optimization.

The ROI of Scan-to-BIM

40%

Fewer RFIs

Reduction in requests for information due to precise existing-conditions documentation.

30%

Less Rework

Fewer costly on-site corrections when teams work from accurate as-built data.

2×

Faster Modeling

Scan-derived models are produced significantly faster than traditional measured surveys.

A Smart Investment

While an upfront investment in scanning and modeling exists, the downstream savings from reduced construction errors, optimized scheduling, and fewer change orders deliver substantial returns – often recouped within the first project.

Increasingly accessible **mobile LiDAR scanning apps** are lowering the barrier to entry, making this technology viable even for smaller hospitality renovation budgets.

The question is no longer whether Scan-to-BIM pays off – it's whether you can afford to renovate without it.

Embrace the Future: Transform Your Next Hospitality Renovation

Precision. Efficiency. Excellence.

Scan-to-BIM is far more than a documentation tool – it is a **strategic competitive advantage** that elevates every phase of the renovation lifecycle, from design through delivery and beyond.

Capture with Confidence

LiDAR scanning delivers the accuracy your project demands.

Design with Intelligence

BIM models empower every decision with reliable, data-rich context.

Deliver with Precision

Fewer errors, faster timelines, and a superior hospitality experience.